

Claims:

1. A process for removing solid particles from a liquid stream in a pulp or paper mill having a filtering device having an inlet for liquid having at least some undesirable materials, an outlet for treated liquid having reduced concentration of undesirable material, an outlet for undesirable material, and a perforated screen element, comprising:

(a) introducing a first liquid having an undesirable material content to the inlet;

(b) introducing a second liquid having at least some comminuted fibrous material to the inlet to form a mixture of the first and second liquids;

(c) passing the mixture of the first and second liquids through the screen element to produce a third liquid having little or no undesirable material;

(d) discharging the third liquid from the filtering device; and

(e) practicing steps (a)-(d) so that at least some of the comminuted cellulosic fibrous material introduced with the second liquid is retained on the screen element to form a permeable mat of cellulose material which acts as a filtering medium for the undesirable material in the first liquid.

2. A process as recited in claim 1 wherein steps (a)-(d) are practiced using a cylindrical screen element as the screen element.

3. A process as recited in claim 1 wherein (b) is practiced so that the second liquid is mixed with the first liquid prior to being introduced to the inlet.

4. A process as recited in claim 1 wherein step (b) is practiced by continuously introducing the second liquid.

5. A process as recited in claim 1 wherein step (b) is practiced by intermittently introducing the second liquid.

6. A process as recited in claim 1 wherein in step (b) the introduction of the second liquid is regulated as a function of the introduction of the first liquid.

7. A method as recited in claim 1 wherein (a)-(d) are practiced so as to sense undesirable material in the liquid and to automatically adjust a mat formed on the screen element in response to that sensing.

8. A system for treating a liquid stream in a pulp and paper mill to remove undesirable material from the liquid stream, comprising:

a filtering device including a perforated screen element having a filtering surface, an inlet, and a filtered liquid outlet;

said inlet connectable to a source of liquid containing undesirable material;

said inlet connectable to a source of liquid containing at least some comminuted cellulosic fibrous material to the inlet; and

a bed of comminuted cellulosic fibrous material on the filtering surface of the screen element to provide a fine screening medium.

9. A system as recited in claim 8 wherein said screen element is a cylindrical screen element.

10. A system as recited in claim 9 wherein said screen element rotates.

11. A system as recited in claim 9 wherein said screen element is stationary.

12. A system as recited in claim 8 wherein said filtering surface is a concave or external surface.

13. A system as recited in claim 8 wherein said filtering surface is a convex or internal surface.

14. A system for treating a liquid stream in a pulp and paper mill to remove undesirable material from the liquid stream, comprising:

a filtering device having a perforated screen element having a perforated filtering surface, an inlet and a filtered liquid outlet, a liquid containing undesirable material, and a liquid containing at least some comminuted cellulosic fibrous material, introduced to the inlet; and

a bed of comminuted cellulosic fibrous material on the perforated filtering surface of the screen element which provides a finer screening medium than the perforated filtering surface of the screen element without the bed of comminuted cellulosic fibrous material present.

15. A system as recited in claim 14 wherein said screen element is a cylindrical screen element.

16. A system as recited in claim 14 wherein said screen element rotates.

17. A system as recited in claim 14 wherein said screen element is stationary.

18. A system as recited in claim 14 wherein said filtering surface is a concave or external surface.

19. A system as recited in claim 14 wherein said filtering surface is a convex or internal surface.